

# FLORIDA HIGHWAYS



Vol. V

SEPTEMBER, 1928

No. 9

Published by the State Road Department

\$1.00 Per Year

Single Copies 10c



Camp Site on Wilson Highway in Gulf County.



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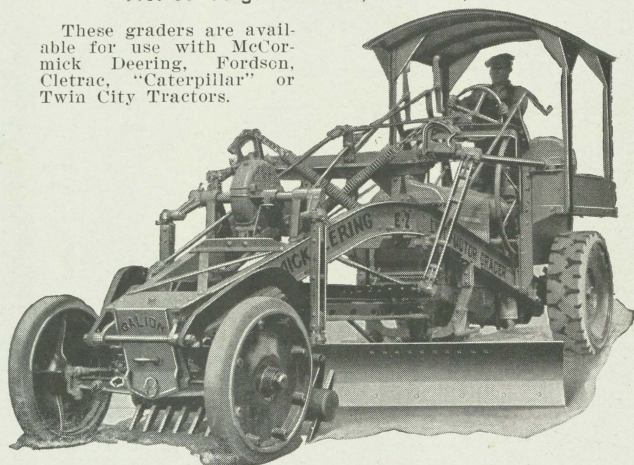
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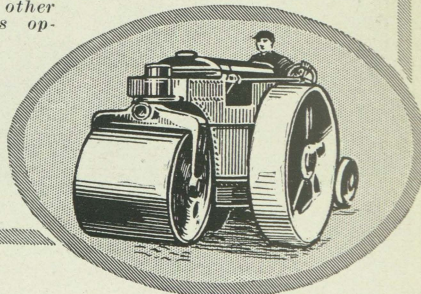
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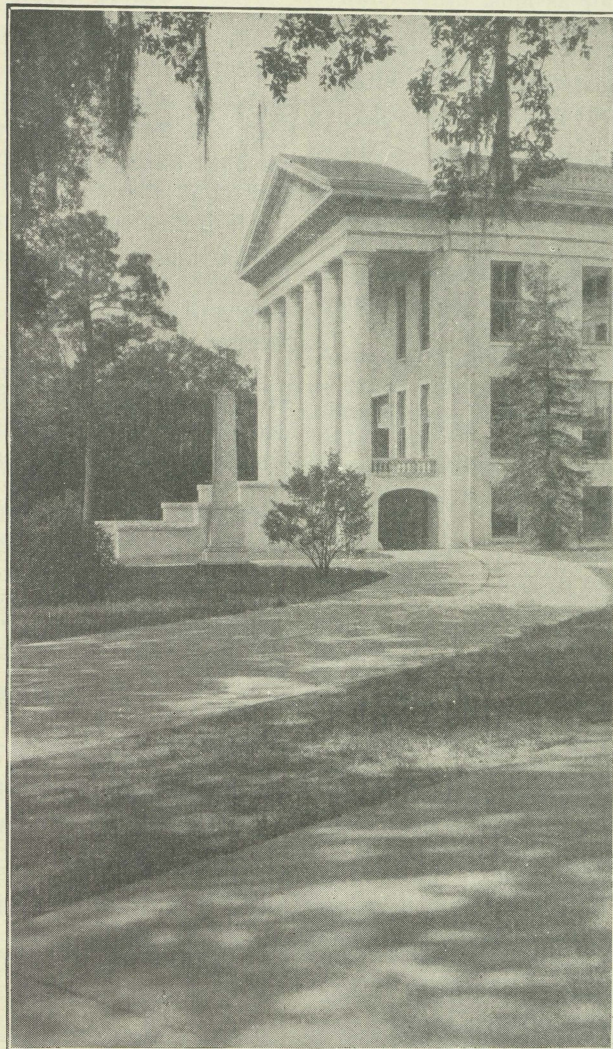
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# F L O R I D A

Vol. V  
No. 9



# H I G H W A Y S

SEPTEMBER  
1928

## U.S. To Play Host To European Road Builders in 1930

### MACDONALD RETURNS FROM PARIS AFTER CONFERENCE WITH OFFICIALS OF INTERNATIONAL ROAD COMMISSION

**Says United States is Giant Highway Laboratory for Engineers—Coolidge Sends Invitation From Congress**

**L**EADING highway officials from all parts of the world are coming to the United States in 1930 to study American methods of road improvement and road use, according to word brought back from the recent sessions of the International Road Commission at Paris, by Thomas H. MacDonald, chief of the United States Bureau of Public Roads and chairman of the Highway Education Board.

Mr. MacDonald went to France as head of the official delegation representing the American government at the road meeting. He later made an investigation into phases of highway development in many of the countries of Western Europe and in the British Isles.

#### Interest in Program

"Not only was the invitation extended by our Congress through President Coolidge accepted unanimously," said Mr. MacDonald, "but from comments of delegates from other countries, it is evident there

is a deep-rooted, world-wide interest in what is being done to improve highways here.

"The great distinction which exists between our program and that of other nations, is that while here the whole country has adopted motor transportation, elsewhere car use is still largely in the hands of a few.

"The rapid expansion in the United States faced our engineers with an urgent demand for the immediate improvement of hundreds of thousands of miles of highway. At the same time, increased valuations growing out of bettered transportation facilities and a moderate tax upon the vehicle itself made it actually cheaper for the public to have roads than to go without them, so that we were able to embark upon a construction program without parallel in the history of public works without dislocating our financial system.

"Concurrently, we were faced with the question of whether it was cheaper to build these roads slowly



and laboriously by human labor as most other countries now do, or whether we should work out mass production methods and so meet the national demand quickly. Experience has demonstrated that the latter plan is by far the more efficient and less costly.

#### Same Problems Face Other Nations

"Foreign highway engineers who are as well or better versed in the technique of road building as our own men, in the main are only now arriving at the stage where they must meet similar problems in their own countries, hence their interest in the sessions here in 1930.

"Further, because of the wide diversity of geographical, climatic and soil conditions in the United States, coupled with varying degrees of wealth and population, it is possible to approximate here the basic problems which confront engineers from abroad, whether they are interested in congested areas, such as England has, in primary roads, such as are needed in the newer countries, or in questions of mountain roads such as face Austria, Switzerland and other nations.

#### United States Giant Laboratory

"So that the United States in 1930 will be a giant laboratory in highway development and motor transportation where highway officials from other countries will find an opportunity to see not only what has been accomplished from an engineering point of view, but also to observe both the social and economic influences which have been affected.

"At the same time, our engineers will have an opportunity to learn what is being done in other countries and to compare notes with their foreign colleagues."

Aside from Mr. MacDonald, members of the United States delegation to the International Commission were H. H. Rice, treasurer of the National Automobile Chamber of Commerce, Pyke Johnson, executive director of the Highway Education Board, and H. H. Kelly, Commercial Attache, representing the Department of Commerce.

An American committee will be named soon to take charge of the work of preparation for the congress.

#### Diplomacy

An Oxford undergraduate son of the vicarage discovered that he was uncomfortably short of doubloons, so he spent some time concocting a letter which should have the right effect upon a somewhat severe and pious parent. When finally completed, the letter read as follows: "My dear Father: I wonder if you will oblige me very greatly by sending me a copy of this month's 'Parish Magazine,' also a five-pound note. P. S.—Don't forget the 'Parish Magazine.'"—Sporting and Dramatic News.

#### THE IDEAL SITUATION

An exchange says: "The ideal situation will be attained when a car is in reach of every man, and every man out of reach of a car." But ideal conditions are hard to attain in this world.

"What's the fuss in the school-yard sonny?" asked a gentleman passing a ward school.

"Why, the doctor's just been around examinin' us, an' one of the deficient boys is knockin' hell out of a perfect kid."



Chipola River, Jackson County.



## The Fourth Estate

By Platt Young



AT EVERY DOOR on every floor with golden dawn of day my notes and views on daily news command your eager sway; at breakfast time in any clime 'tis dad my quarto begs to glimpse each sheet in manner fleet, awaiting ham and eggs. Then mother scans the marriage banns or haply reads of those that played at bridge across the ridge and won a pair of hose; or maybe finds some gauzy kinds of teds or underwear reduced to rate two ninety-eight from even three per pair.

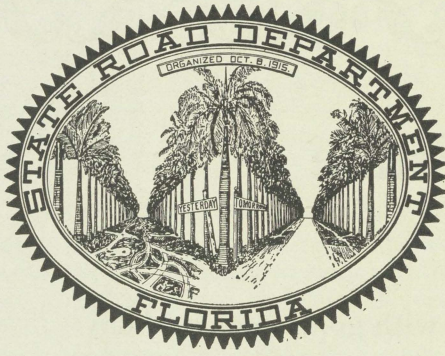
Then younger folk who like a joke take up my daily sheet and note with thanks the wily pranks their hopeful glances greet; on every page for youth or age there's something to invest each groping mind with keener kind of soul refreshing zest. In featured art I play my part, in fashions, verse and lore; in market chat of this or that, in final baseball score. If you would bake a pie or cake, like mother loved to do, or knead fresh rolls for hungry souls, I print the how for you; if failing nerve forbids you serve when playing hostess part, I make it plain to entertain is just a simple art.

In politics I'm apt to mix and take a steadfast stand for keener note for those that vote to rule this treasured land; to do or die, I'm wet and dry, and sometimes find it hard to hew and cut to duck the rut and keep the greener sward; and often then some lowly den my gander seeks to get by sending out with lusty shout that I am mostly wet. In church and state I educate my readers when I can; it's quite in vain to blend this twain and please each mortal man; for I would keep some questions deep upon the topmost shelf and play the role with all my soul of Old Vox Pop himself.

With meat for pup you wrap me up, shelve me in your pantry; in cosy nooks I hide your books, cover "Elmer Gantry"; when laundry goes I shield your clothes, I kindle furnace fire; the children dear my pictures shear, fulfilling each desire; in winter time in frigid clime 'midst snow and icy sleets I keep you warm and free from storm when placed between the sheets. I hail your birth upon this earth the selfsame day you're hatched, and when you leave I mourn and grieve the moment you're dispatched; I print for you my constant view of lowly things and great, and joy and tears attend my years: I'm called the Fourth Estate.

—GEORGIA HIGHWAYS.





# Florida Highways

Published Monthly  
Official Publication of the State Road Department

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Volume V      September, 1928      Number 9

## POLITICAL CLASSIC

The Houston Post-Dispatch reprints the following announcement of a West Texan for the office of county attorney in his county:

To the Voters of Throckmorton County:

Having been strongly solicited by my wife, I hereby announce my candidacy for the office of county attorney. I shall be opposed in this race by two of your best known citizens, Hon. B. F. Reynolds and Mr. James F. Wright. Concerning them, I shall have nothing to say except that they are upright and honorable men deserving your confidence and support.

Mr. Reynolds came to Throckmorton County before most of us were born, when it represented the last outpost of civilization and lay far out on the edge of the wild frontier. But for such men as he, who came here when every step was attended by dangers and existence meant battle and a march, there would be no Throckmorton County and no county attorney's office to fill. For his labor and sacrifice we are all grateful. A life of noble deeds and great achievements recommended him to the voters. He is my friend and I love him. I have served for the past year, and am at present, his assistant.

Mr. Wright is a native son and was born in the county he seeks to serve. He is capable and qualified to fill the office and is deserving of the trust he asks you to bestow. He, also, is my friend, and should you elect him as your servant, I am sure your confidence would not be misplaced.

As for myself, I am an "Arkansas Hill-Billy," born and raised in the Ozark Mountains. Outran the dogs on Sunday morning to keep from having my face washed—did my sparring bare-footed—never saw a train until I was 15 and was almost grown before I learned that Republicans walked on hind feet like people.

Have farmed with a bull-tongue plow—taught school—practiced law—and am a first-class mechanic, having worked a right smart around a molasses mill. Came to Texas two years ago and married the finest little girl in Throckmorton County. I want the office because I think I can make a living out of it and will promise, if elected to try and make thieves and bootleggers think hell ain't 40 feet from the courthouse.

So I expect to spend the time between now and the election, kissing babies, complimenting the ladies' cooking and bragging on the Old Man's crop.

Your vote and influence will be appreciated.

JEFF FOWLER.

Figures just issued by the Federal government, showing progress in Federal-aid road construction to July 31, 1928, disclose that 71,584.9 miles have been completed since 1917, and 10,753.9 miles of roads are under construction at a total estimated cost of \$264,000,000, of which the Federal government is contributing \$105,000,000, according to the American Motorists' Association. There is a balance of more than \$48,500,000 still in the hands of the Federal government for expenditure on Federal-aid road projects for 1928.





River Front Scene Off Road No. 4, Near White City.

## What We Have

**T**WENTY-FIVE years ago, there were no hard roads. In 1915, we spent something over \$250,000,000 in trying to improve our highways. This probably means over \$3,000,000,000 during the fifteen years, 1903-1917. In 1925 we spent on improvement, over \$1,200,000,000 which likely indicates more than \$9,000,000,000 during the ten years 1918-1927—a total of over 12 billion dollars endeavoring to improve our roads in the past twenty-five years. No one can say accurately the exact amount, but this is near enough for practical purposes. This vast expenditure has given us in round numbers:

About 90,000 miles of paved highways,

About 40,000 miles of hard-surfaced roads,

About 470,000 miles of surfaced roads,

More than 2,400,000 miles of native soil, soft, dirt roads.

No one knows how much we have spent in these twenty-five years on these native soil, soft, dirt roads—grading, ditching, scraping, dragging over and over, again and again. Our road bill of fifteen and maybe twenty million dollars, more or less, in twenty-five years, has given us the above results. We should and could have done better.

Many of our paved roads are being rebuilt—more will have to be. All our hard-surfaced roads will be paved. Our surfaced mileage, made of water-bound macadam, stone, gravel, chert, slate, sand clay and oil sand, will all be hard-surfaced and then paved, unless paved first. All additional surfaced mileage eventually will be rebuilt in similar manner if we go along as we have in the past.

But our improved roads are a disconnected, disjointed aggregate of mileage. We have very few long, continuous through roads, paved from end to

end. Our present paved highways are again best pictured by the map of Michigan under state aid. For the same cost and in the same time, we could have had 400,000 miles of continuous, connected, paved highways, north and south, and east and west, through every one of our three thousand and seventy-two counties in our forty-eight states.

During these twenty-five years we have had one hundred and sixty million motor vehicles on our highways. They probably average more than 5,000 miles a year, so these vehicles have traveled over 800 billion miles. Tests show that paved roads save over 2.5 cents a mile in operating costs. Adding the probable repair and depreciation saving, the total is likely over 3 cents a mile. As during these years we have had a negligible paved mileage, except in our cities, our loss is likely to have exceeded our expenditures for building during these twenty-five years. This is enough to have built another 400,000 miles of continuous, paved highways. Our road bill in cost plus loss for twenty-five years thus amounts to 30 billion dollars at the least, and more likely 40 billions, and we have less than 100,000 miles of paved highways—the only kind that can be permanent.

### America Awakening to Road Building

During these twenty-five years, our people have become more and more alive to the need of good roads everywhere. They have come to know the fundamental necessity for these good roads. They understand that economic, material, and social progress depends largely upon having good roads. They realize that their well-being and prosperity are most favorably affected by good roads. This awakening to the vast benefits and need of good





Crescent City. Road 3. Putnam County.

roads everywhere has taken a grip on the entire nation. We see this in the many road associations working for the cause or for a particular highway. We see it in the ever-increasing road appropriations by towns and townships, by counties, by states, and now by the federal government.—Nation's Highways.

**MISSOURI**—In planning improvements, the highway department has made it a policy to fix "bad" sections first, raising grades across bottom lands above high water, improving roads through rough, stony sections, replacing old bridges and otherwise ironing out traffic hindrances.

**WASHINGTON, D. C.**—Progress is being made on America's most monumental bridge, the Arlington Memorial Bridge, across the Potomac River into the National Capital. Foundation work has been under way for many months, while the superstructure was recently let to contract.

**VIRGINIA**—Carrol County in 1928 will bid for state leadership in road improvements by grading and improving drainage on more than 50 miles of its county system and macadamizing a portion of this mileage. This program is a continuation of a 1927 program of equal proportions, launched to provide a system of all-year farm-market roads in the vicinity of Hillsville, the county seat.

#### Place in the Sun.

They were discussing silk stockings.

"They were invented in Queen Elizabeth's time," said the man who knows everything.

"Yes," commented another, "but they weren't discovered till the twentieth century."—Tit-Bits.

#### COURTESY MEANS SAFETY

(An Editorial in The News Publicist, Chandler, Okla.)

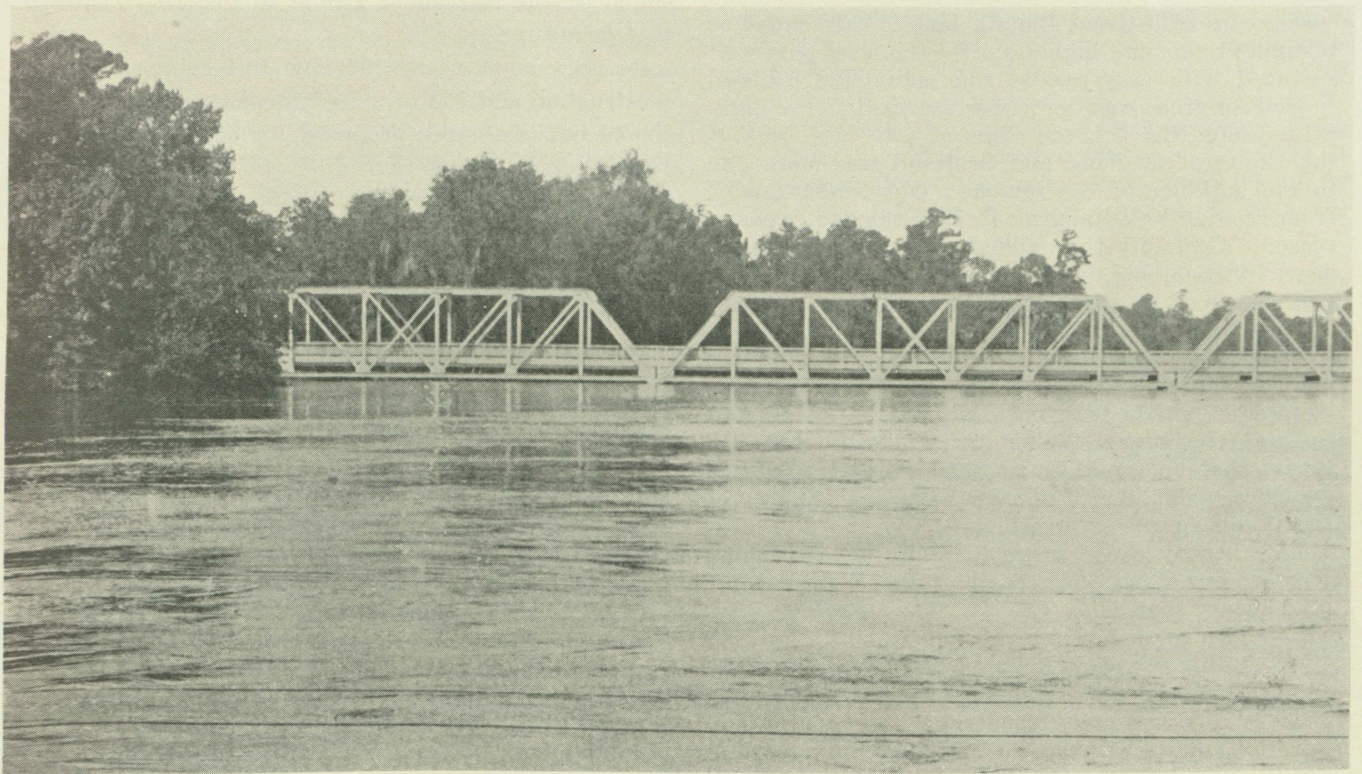
Quite a few accidents reported around Chandler from time to time doubtless could be avoided if every driver realized that courtesy means safety. Every now and then we hear of someone being "crowded off the road." And there is no excuse for it. When a driver signals that he wants to pass an auto ahead, and the driver ahead can safely pull over to the right side of the road to let him pass, it is his duty to do so. Forcing the man in the rear to take chances on getting safely around you, or speeding up as he gets alongside, is the kind of discourtesy that causes accidents. Giving a little right-of-way has never yet caused a mishap and courtesy has never resulted in any broken bones. Let us hope that more of our drivers will remember this. There are enough hazards in motoring as it is without creating additional ones through a lack of courtesy. Good drivers never lose sight of the fact that "courtesy means safety."

There are more than 80,000 passenger busses operating over the highways of the United States according to report recently compiled. Of these 42,000 are serving as common carriers and travel 89 per cent of the bus mileage. More than 8,000 of the common carriers busses are operated by railroad companies. In 1927 the average taxation per vehicle of the common carrier busses was \$431.00. This includes gasoline taxes, license fees and special taxes. The average taxation per bus in Maryland was \$1,571, and Utah \$1,500. While in New Jersey the average per bus was only \$45.—Nebraska Highways.





Approach to Suwannee River Bridge During High Flood Waters of August.



Suwannee River Bridge During the Torrential Floods of August.





Road 6. Overhead Crossing at Campbellton.

### LAST TOLL GATE QUILTS THE ROAD

The last toll gate in England was removed recently and the woman keeper who had guarded it for sixty years has retired with the distinction of being the last of her calling.

Thus ends a system of highway building and maintenance that reached its peak in the era of the stage coach. In 1820 Great Britain had 114,829 miles of turnpike roads and highways, for the most part well surfaced with easy grades and many fine bridges. Indeed, so great was the power ascribed to the highway system that it is the claim of some writers that the Union of England and Scotland was more due to the building of the famous "Old North Road" from London to Edinburgh in 1707 than to dynastic reason. Certainly the extension of the road to the north of Scotland, a total distance of 340 miles, played a part in stimulating the industries of both nations.

It may be asked, now that the turnpikes are abolished, what will become of the misanthropes who were supposed to take naturally to the keeping of toll gates? Samuel Weller, Sr., made the dreadful threat that he would retire and "keep a pike" as evidence of his hatred of men. The sour temper of the pike-keeper is proverbial. Only the power of female beauty could soften it. Of the entrancing Irish widow it was written that she so dazzled the pike-keeper that he

Never asked for the toll  
But scratched his bald poll  
And looked after the lowbacked car.

Those days are gone forever. Yet we continue to pay toll and to build and maintain highways without the pike-keeper. Our toll is paid in gas tax and license tax and there is not a toll gate to impede our progress.—St. Paul Pioneer Press.

### STUDY IS MADE OF TOLL BRIDGES ON ROADS OF NATION

Toll bridges numbered 233, of which 191 were privately owned in operation in the United States January 1, 1928, according to a survey recently completed by the Bureau of Public Roads, Department of Agriculture.

At present, there are 29 new toll bridges under construction and 163 proposed for construction. Included in the number proposed for construction are all projected bridges regarding which some definite step has been taken, such as the filing of application for franchise or organization of a company to finance construction.

Of the 233 toll bridges now in operation, 86 were built within the last 10 years, according to the survey. If the bridges now under construction or proposed are completed, and none of the existing bridges is freed in the meantime, the number of toll bridges in the United States will nearly double in a few years.

#### Bridges on Federal-Aided Roads

The study also shows that the majority of toll bridges in the country are on roads which are part of the Federal-aid Highway system, the reason being that this system of 186,000 miles includes the most important state and interstate roads, which are consequently the most heavily traveled roads in the country. Of the 425 toll bridges in operation, under construction, or proposed at the beginning of the year, 217 or more than half were on the Federal-aid systems, 60 were on roads included in state highway systems but not in the Federal-aid system, and 148 were on other roads.—California Highways.





Road 5, Citrus County. Between Inverness and Floral City.

### FIRST TRAFFIC ORDINANCE AGAINST SPEEDERS IN RHODE ISLAND IN 1678

Traffic ordinances against the speed demon had their beginning in 1678 in Rhode Island. This traffic ordinance was embodied in a resolution of the assembly of the colony of Rhode Island and was the result of the running down of a child in the streets of the town of Newport. The resolution of the assembly as it appears in a recent article in the "American City" reads as follows:

"Whereas, there was very lately in the town of Newport on Rhode Island very great hurte done to a small childe by reason of exceeding fast and hard riding of horses in said town, this Assembly taking the matter into their searious consideration and being desirous for the future to prevent the like mischief, doe ordain, et cetera—that from and after the publication hereof, if any person or persons shall presume to ride on either horse, mare or gelding, a gallup or to run speed—in the streets of Newport—said person shall for his offense pay—unto the Treasurer of said towne 5 shillings in money on demand; 2 shillings of which shall be paid to any person or persons that shall give information thereof and the other 3 shillings to remain for the use of the said towne."

And the Town Sergeant was immediately empowered by a special act to "take by distraint" the said 5 shillings if they were not immediately forthcoming.—Nation's Highways.

### ONE CAR, ONE DAY, ONE DOLLAR

An average of \$229 was spent by each motorist in the United States during 1927 in the operation and maintenance of his car, according to figures compiled

by the American Motorists Association. Of this sum \$101, or 44 per cent, was expended for fuel and lubricants, this being the largest item in the motorist's annual operation and maintenance bill.

The \$229 figure does not take into account depreciation. The average life of a passenger automobile, however, according to Federal government statistics, is seven years. During 1927 the average retail price per passenger car in the United States was \$953 which, based on a seven year life expectancy, would mean an average depreciation of \$136 per year. From this figure plus the average upkeep cost of \$229, it will be seen that the general average cost of operation of a motor car, plus depreciation, is \$365 per year or one dollar per day.

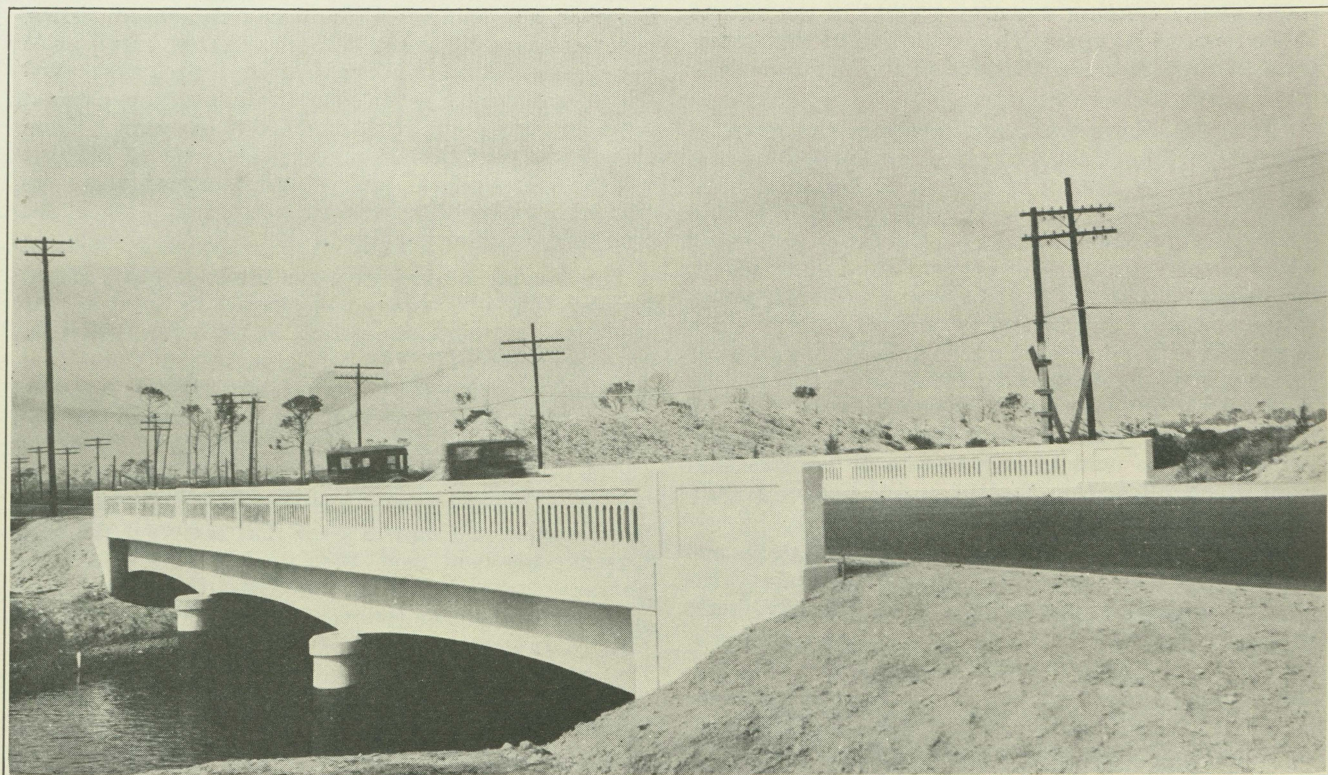
The second largest item on the motorist's maintenance bill is for time of mechanics in doing repair work, the motorist expending in 1927, for this item, an average of \$47. His replacement parts cost him \$41 during the year and his average tire bill was \$40. The total operation and maintenance bill of the 23,127,000 motorists of the country last year aggregated \$5,300,000,000, the figures show.

Comparing the cost of operation in 1927 with 1926, the Association's figures show that last year the cost was five per cent more than during 1926, when the average operation cost was \$219. Comparative figures, between the two years, however, it is pointed out by J. Borton Weeks, President of the Association, do not indicate that operation costs are necessarily increasing. The difference is explained primarily by greater mileage made by the average motorist in 1927 which means an increase in not only gasoline consumption but in tires and wear of replacement parts.—Nation's Highways.





Project No. 562-B, Road No. 8, Polk County.

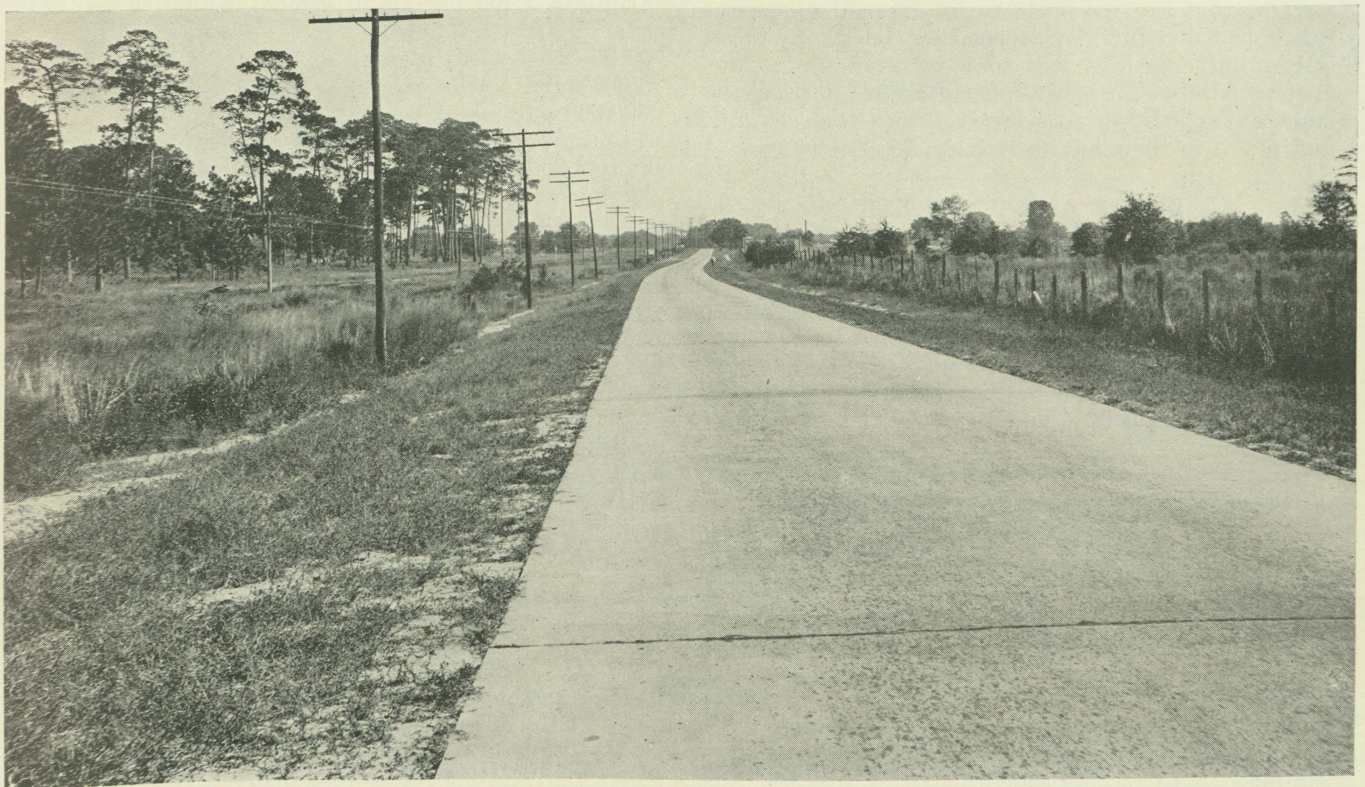


Project 41-B, Road No. 4, Biscayne Canal.



## Contracts Awarded by State Road Department January 1st, 1928, to September 17th, 1928

Contractor—	Project No.	County—	Length Miles	Length Feet	Contract + 10 %	Type
Sutton Bros. ....	55-B	Alachua	.....	457	\$ 54,272.17	Concrete
General Const. Co. ....	677-D	Levy	.....	1,335	43,000.98	Timber
Frost Const. Co. ....	710-B	Hillsboro	.....	260	54,775.16	Concrete
Sutton Bros. ....	764-B	Suwannee	.....	113	19,043.82	Conc. Overh'd.
Duval Engr. & Contr. Co. ....	677-D	Levy	.....	8.91	110,370.35	R. B. S. T.
E. F. Powers Const. Co. ....	710-C	Hillsboro	.....	12.69	95,125.45	C. G. & G.
B. Booth	755	Polk	.....	11.22	58,518.86	C. G. & G.
Little & Lee	757	Polk	.....	10.26	63,516.17	C. G. & G.
Little & Lee	758	Polk	.....	8.34	46,380.34	C. G. & G.
Gilbert & Hadsock	732	Polk	.....	8.94	57,077.26	C. G. & G.
C. G. Kershaw Contr. Co. ....	736	Holmes	.....	8.58	45,097.93	C. G. & G.
C. G. Kershaw Contr. Co. ....	709	Holmes	.....	9.09	53,931.71	C. G. & G.
Morgan-Hill Paving Co. ....	61-C	Gadsden	.....	9.77	244,581.31	Concrete
Franklin Const. Co. ....	710-A	Hillsboro	.....	6.18	38,592.08	C. G. & G.
E. M. Chadbourne	697	Escambia	.....	.14	3,401.25	Surface
Robert G. Lassiter & Co. ....	683-A	Palm Beach	.....	8.04	264,999.43	Concrete
Rutherford Const. Co. ....	695	Lake	.....	3.00	46,992.07	R. B. S. T.
S. G. Collins	827	Escambia	.....	8.12	50,151.29	C. G. & G.
M. C. Winterburn, Inc. ....	61-A	Gadsden	.....	10.00	231,578.27	Concrete
Phoenix Asphalt Paving Co. ....	669-X	Collier	.....	9.40	28,814.77	Surface T'd.
Everglades Const. Co. ....	62-C	Osceola	.....	11.83	115,303.71	C. G. & G.
A. D. Weeks	62-D	Osceola	.....	12.62	83,299.72	C. G. & G.
A. D. Weeks	62-A	Osceola	.....	12.52	66,571.01	C. G. & G.
R. C. Huffman Const. Co. ....	807-A	Palm Beach	.....	10.81	201,713.22	R. B. S. T.
R. C. Huffman Const. Co. ....	807-C	Palm Beach	.....	6.14	99,923.54	R. B. S. T.
C. A. Steed & Son, Inc. ....	804	Glades	.....	18.55	416,083.52	R. B. S. T.
Duval Engr. & Contr. Co. ....	659	Clay	.....	7.25	95,449.25	R. B. S. T.
Silas Gibson	815	Okaloosa	.....	13.58	60,680.23	C. G. & G.
W. J. Bryson Paving Co. ....	819	Okaloosa	.....	4.69	20,979.67	C. G. & G.
W. J. Bryson Paving Co. ....	823	Okaloosa	.....	9.18	34,085.34	C. G. & G.
W. J. Bryson Paving Co. ....	824	Okaloosa	.....	9.81	59,898.02	C. G. & G.
Perkins Const. Co. ....	820-B	Jefferson	.....	.....	4,881.25	Timber
Maddox Foundry & Mach Co. ....	743	Bay	.....	120	13,774.47	Timber
C. C. Hayes	802-A	Okaloosa	.....	8.67	76,559.56	C. G. & G.
P. R. Alsobrook	661	Lake	.....	0.10	1,980.00	C. G. & G.
Central Station Equipment Co. ....	769	Lee	.....	.70	585,216.61	Concrete
Collins Const. Co. ....	803	Okaloosa	.....	11.13	82,342.33	G. & D.
Nelson Brothers	56	Leon	.....	17.982	430,409.67	Concrete
Manly Construction Co. ....	53-C	Lake	.....	2.85	67,778.57	Bit. Conc.
Broadbent Constr. Co. ....	719	Suwannee	.....	8.57	91,044.80	R. B. S. T.
Duval Engr. & Contr. Co. ....	764	Suwannee	.....	12.00	140,666.31	R. B. S. T.
Wm. P. McDonald Const. Co. ....	687-B	Lake	.....	15.22	209,058.24	R. B. S. T.
Curry & Turner	802-C	Okaloosa	.....	10.24	45,454.92	G. & D.
H. E. Wolfe	669-W	Collier	.....	16.00	58,856.15	S. T.
Baker & Lewis Const. Co. ....	740	Gulf	.....	9.62	37,400.00	Hauling rock
Alexander, Ramsey & Kerr	669	Collier	.....	32.00	39,720.00	Guard Rail
L. L. Pararo Const. Co. ....	685	Franklin	.....	14.43	93,500.00	Hauling rock
H. E. Wolfe	669-V	Collier	.....	31.62	116,314.44	S. T.
Total.....			440.79	6,829.0	\$4,959,256.22	



Project 529, Road No. 1, Suwannee County. Near Live Oak.



## THE CIVIL ENGINEER

PAUL C. OWEN, Resident Engineer

The Civil Engineer is a species of amphibious biped adapted to life in water as well as on land. Engineers are of various sizes but are usually rather large and have harsh voices, rough faces covered with long hair and their legs are always made of leather. Their habits, however, are the best means of distinguishing them from the other anthropoids that range the forests. They are omnivorous, having every habit known as well as several others not classified. Their chief peculiarity is the habit of disappearing suddenly into the solitude of the woods and remaining away for weeks at a time, returning as suddenly, covered with long hair and having a voracious appetite.

Their food while on these jaunts has been the subject of considerable speculation by scientists. It is pretty well established, however, that it consists largely of tobacco and mathematics; for it is well known that they are fond of both. Some individuals appear to be especially fond of one particular variety of mathematics—trigonometry—and have been known to leave all other forage for this delectable morsel. There is a great deal of speculation as to whether or not engineers can be tamed. It is well known that they will not thrive well or even survive in captivity, however, a number of ladies who have attempted to domesticate them report that they sometimes become so docile as to eat from the hand and are prized rather highly as pets.

Reliable observers report that they have cause to believe that engineers are responsible for a number of peculiar changes in the landscape. They are supposed to have dammed a great many rivers causing lakes of considerable extent. A number of large ditches are accredited to them and they show an almost human intelligence in constructing bridges over streams that are too wide to be crossed otherwise. It is hoped that further information concerning these interesting creatures will soon be available to the general public—for several scientists are now organizing an expedition to penetrate into their haunts and pry into their habits.—Kentucky Highways.

## SUGAR AND CONCRETE

By D. V. TERRELL, Research Engineer

We who are associated with the testing of materials have known for many years that sugar is perhaps the most injurious material known to concrete. The presence of a very small quantity will reduce the strength of test specimens to nothing. A sample of sand or of cement shipped in a sugar sack will always fail.

We recently had a case of this nature. A sample of cement of a well known brand was received in the laboratory. The tests were run in the regular way. At the end of seven days it was noted that the test specimens did not have any strength. Upon being placed in the machine they fell apart without pressure. The sample of cement was then examined and appeared all right. It had been sent out in a one gallon bucket which we took to be an old syrup bucket. Complete details were asked of the Resident Engineer with instructions to send a new sample.

The Resident Engineer replied that the bucket was a new one and had not been used, but added that his Inspector had used a sugar sack to obtain his sample—that the cement was carried from the car to the camp in the sugar sack, then placed in the gallon bucket. This accounts for the failure. The check sample passed with a good margin and the whole matter was cleared up.

In selecting bags for shipping cement, sand or material for coarse aggregate, neither the inside or the outside bag of a sugar container should be used, as a good deal of trouble may develop from a small amount of sugar. To be on the safe side, keep anything containing sugar away from materials to be used in concrete.—Kentucky Highways.

## BAD ROADS ARE A COSTLY TAX

Poor roads are costly to motorists. Motorists of the United States, according to dispatches, pay a bad roads tax equivalent to 22.3 cents on every gallon of gasoline consumed on a poor highway.

Experiments at Washington State College, Iowa State College, and the North Carolina State College, show that on a basis of speed of 33 miles an hour, the cost in tires and gasoline per 1000 miles over a certain rough road for an average four-cylinder car weighing 3500 pounds loaded, was \$35.10. At the same speed, the cost for the same car over a very smooth, improved road was only \$12.80.—California Highways.

## A MILE OF CONCRETE

The editor of Michigan Roads and Pavements is authority for the following figures:

A mile of concrete 18 feet wide and 7 inches thick is equivalent to 2,000 cubic yards of mixed concrete. It covers 2 1-4 acres of ground.

Contains 3,400 barrels of cement which is 17 car loads.

1,100 cubic yards of sand or 32 car loads.

1,600 cubic yards of crushed stone—46 car loads.

300,000 gallons of water—38 tank car loads.

The total weight of the mile of concrete is approximately 4,000 tons.

To burn the cement required for a mile of road it requires 340 tons of coal and to sack it 13,600 sacks are required. To make these sacks 13 bales of cotton are used.

When we add to this the engineering and construction costs, it is not difficult to understand that it takes money to build real roads.—Nation's Highways.

Willie—"Say pop, did you go to Sunday School when you were a boy?"

Father—"Yes, son, regularly. Never missed a Sunday."

Willie—"Well, I'll bet it won't do me any good, either."

## Stop, Look, Listen

He heard the toot, but tried to scoot

And beat the choo-choo to it.

The poor galoot now twangs a loot,

Take heed that you don't do it.

—Georgia Highways.



# Florida Highways

13





Project 604, Road No. 4, Volusia County. Near Port Orange.

The celebrated soprano was doing a solo when Bobbie said to his mother, referring to the conductor of the orchestra:

"Why does that man hit at that woman with his stick?"

"He's not hitting at her," replied the mother. "Keep quiet."

"Well, then, what's she hollerin' for?"—Answers.

#### Behind the Times

Daughter—"Dad, I want some money for my trousseau."

Father—"But, my dear child, I didn't even know you were engaged."

Daughter—"Good heavens, Father! Don't you ever read the papers?"

The schoolmaster wrote on the back of a boys report: "A good worker, but talks too much." The father signed the report and then wrote: "You should hear his mother."

Oliver Wendell Holmes wrote in 1857 after seeing an old-fashioned bike with a high front wheel: "There seems to be nothing left to perfect in the way of human locomotion but aerial swimming which some fancy is to be a conquest of the future."—Motor Chat.

The train halted for a moment. A traveler reached out the window, called to a boy and said, "Here, son, here's 50 cents; get me a 25-cent sandwich and one for yourself." Just as the train started to pull out, the boy hurried up to the window and shouted "Here's your quarter, mister. They didn't have but one sandwich."

"Popper, vot is a reverie?"

"Ach, ach, Abie, do you should be so dumb, vy it's der fella vit judges der boxing fights; now run get Popper some of dat free running salt vot I saw advertised."—Missouri Roads.

Professor—Waiter, have I left my hat here?

Waiter—No, but your friend, Professor X has been waiting here for three hours for you.

Professor—There! I knew I had forgotten something.—Der Brummer, Berlin.

Sandy—Father, may I have some money to buy firecrackers?

Father—Of course not, Sandy. What do you think I taught you to snap your fingers for?

A young woman walked into the meat market and ordered twenty-five pounds of beefsteak. The butcher promptly cut it out for her and asked whether she would take it with her or have it sent out.

"Oh, I don't want to buy it," she said, blushing. "You see, the doctor said I had lost twenty-five pounds and I just wanted to see what it would look like in one lump."

#### Enough's as Good as a Feast.

War Department announces that a man, no matter how far he may fall through space, cannot fall faster than 118 miles an hour. Well, not being much of a speed fiend that would be plenty fast enough for us, but it seems as though something should be done about it for the benefit of those who like to travel fast.—Albany Knickerbocker Press.



# The Proposed New Calendar

							MAY													
							S	M	T	W	T	F	S							
							1	2	3	4	5	6	7							
JANUARY							8	9	10	11	12	13	14	SEPTEMBER						
S	M	T	W	T	F	S	15	16	17	18	19	20	21	S	M	T	W	T	F	S
1	2	3	4	5	6	7	22	23	24	25	26	27	28	1	2	3	4	5	6	7
8	9	10	11	12	13	14	JUNE							8	9	10	11	12	13	14
15	16	17	18	19	20	21	S	M	T	W	T	F	S	15	16	17	18	19	20	21
22	23	24	25	26	27	28	1	2	3	4	5	6	7	22	23	24	25	26	27	28
FEBRUARY							8	9	10	11	12	13	14	OCTOBER						
S	M	T	W	T	F	S	15	16	17	18	19	20	21	S	M	T	W	T	F	S
1	2	3	4	5	6	7	22	23	24	25	26	27	28	1	2	3	4	5	6	7
8	9	10	11	12	13	14	29—Leap Day							8	9	10	11	12	13	14
15	16	17	18	19	20	21	SOL							15	16	17	18	19	20	21
22	23	24	25	26	27	28	S	M	T	W	T	F	S	22	23	24	25	26	27	28
MARCH							1	2	3	4	5	6	7	NOVEMBER						
S	M	T	W	T	F	S	8	9	10	11	12	13	14	S	M	T	W	T	F	S
1	2	3	4	5	6	7	15	16	17	18	19	20	21	1	2	3	4	5	6	7
8	9	10	11	12	13	14	22	23	24	25	26	27	28	8	9	10	11	12	13	14
15	16	17	18	19	20	21	JULY							15	16	17	18	19	20	21
22	23	24	25	26	27	28	S	M	T	W	T	F	S	22	23	24	25	26	27	28
APRIL							1	2	3	4	5	6	7	DECEMBER						
S	M	T	W	T	F	S	8	9	10	11	12	13	14	S	M	T	W	T	F	S
1	2	3	4	5	6	7	15	16	17	18	19	20	21	1	2	3	4	5	6	7
8	9	10	11	12	13	14	22	23	24	25	26	27	28	8	9	10	11	12	13	14
15	16	17	18	19	20	21	AUGUST							15	16	17	18	19	20	21
22	23	24	25	26	27	28	S	M	T	W	T	F	S	22	23	24	25	26	27	28
							1	2	3	4	5	6	7	29—Year Day						
							8	9	10	11	12	13	14							
							15	16	17	18	19	20	21							
							22	23	24	25	26	27	28							

"When every farmer in the South shall eat bread from his own fields and meat from his own pastures, and disturbed by no creditor, and enslaved by no debt, shall sit amid his teeming gardens, and orchards and vineyards, and dairies and barnyards, pitching his crops in his own wisdom and growing them in independence, making cotton his clean surplus, and selling it in his own time, and in his chosen market, and not at a master's bidding—getting his pay in cash and not in a receipted mortgage that discharges his debt, but does not restore his freedom—then shall be the breaking of the fullness of our day."

—HENRY W. GRADY.

If Henry W. Grady, the wonderful word-picture artist of the Southland, could rewrite the above beautiful prose poem in the light of events of 1928, he would not declare "the breaking of the fullness of our day" until the farmer could ride to his market, his church, and his school upon a hard surfaced highway.—From the Nation's Highways.

## A COAST-TO-COAST BUS LINE

Consolidation of the Capital Terminal of New York and the newly-organized American Motor Transportation company to form what is believed to be the first coast-to-coast motor-bus transportation





Project 605, Road No. 8.

system, was announced recently. New York under the consolidation, becomes the main eastern terminal, with lines radiating to San Francisco and other far western cities and others to be established between this city and Boston, Washington and Baltimore. The unit will be known as the Yellowway Pioneer System, Inc.

W. E. Travis, president of the \$7,500,000 consolidated system, said that more than 150 small companies or bus route operators now are a part of the system and that when the additions are completed the company's lines will operate over approximately 70,000 miles daily. Joint traffic arrangements have been made with other lines, so that it will be possible to buy tickets for transportation between practically any two points in the country, the president added.

#### HOW A FAMOUS STRUCTURE WAS BUILT

Solomon's Temple, as the Free Masons tell us, was a wonderful building. Few people, however, realize what it was like, nor its size, from the description in the Bible. The following is from "The Living Bible" (or "The Whole Bible in Its Fewest Words") by Bolton Hall.

"Solomon said: 'Behold, I purpose to build a house to my God.' So Hiram gave Solomon cedar-trees, and fir-trees, according to all his desire. And the king commanded, and they brought great stones, costly stones, to lay the foundation of the house. And \* \* \* length thereof was three-score cubits [probably about 100 feet, using the cubit of the temple], and the breadth thereof twenty cubits, and the height thereof thirty cubits; and against the wall of the house he built chambers round about. It was built

of stone made ready before it was brought thither: so that there was neither hammer, or axe, nor any tool of iron, heard in the house while it was in building. And they went up with winding stairs to the third [chamber]. So Solomon overlaid the house with pure gold. And within the oracle he made two cherubims, each ten cubits high. So was he seven years in building it."—American City.

#### Getting By.

Martin Jensen thought he had his full share of good luck when he flew across the Pacific in the Dole races last year, but now he knows that luck is still with him. In company with Bartlett Stephens, assistant superintendent of San Francisco's municipal airport, Jensen started to make a flight.

The plane speeded down the runway, started upward, careened to one side and nearly crashed, when Jensen seized the dual control, righted the ship and held her aloft.

"Gee whiz, Bart!" Marty yelled, "that's the sloppiest take-off you ever made."

"Me?" replied Stephens. "Hells bells, I thought you were at the controls. I wasn't."—Wright Engine Builder.

#### Now Will You Be Good?

Ten cents straight will be charged for all obituary notices to all business men who do not advertise while living. Delinquent subscribers will be charged fifteen cents a line for an obituary notice. Advertisers and cash subscribers will receive as good a send-off as we are capable of writing, without any charge whatsoever. Better send in your advertisements and pay up your subscriptions, as hog cholera is abroad in the land.—Wagon Mound (N. M.) paper.





Project 571, Road No. 1, Madison County. Near Madison.

## A History of Highways

By JOHN S. WORLEY, Professor of Transportation, University of Michigan

THE stones for the first Egyptian pyramid, constructed during the IV dynasty (2800 B. C., Breasted; 5000 B. C., Petrie) were brought from the Arabian mountains to the Nile, thence by water to within a short distance of the site of the pyramid. From here the large blocks of stone were transported over a causeway for the construction of which, according to Beloe's Herodotus, "ten years were consumed in hard labor of forming the road through which these stones were to be drawn; a work, in my estimation, of no less fatigue and difficulty than the pyramid itself. This causeway was 5 stadia [3,000 feet] in length, 40 cubits [20 feet] wide, and its extreme height 32 cubits [16 feet]. The whole is of polished marble, adorned with figures of animals."

Pococke, who traveled in Egypt the first half of the 18th century found "at this time there is a causeway from that part, extending about 1,000 yards in length, and 20 feet wide, built of hewn stone. The length of it agreeing so well with the account of Herodotus, is a strong confirmation that this causeway has been kept up ever since, though some of the materials of it may have been changed, all being now built with free-stone. It is strengthened on each side with semicircular buttresses, about 14 feet in diameter, and 30 feet apart; there are 61 of these buttresses, beginning from the north. Sixty feet farther it turns to the west for a little way, then there is a bridge of 12 arches, 20 feet wide, built on piers that are 10 feet wide. About 100 yards farther there is another such bridge, beyond which the causeway continues about 100 yards to the south."

The oldest artificial road extant is one in Cnossus, Crete. "The Palace of Cnossus was approached from the west by a paved Minoan Way communicating with a considerable building on the opposite hill." This road was constructed prior to 1500 B. C. Today it is intact, having a surface of paving stones which is sufficiently smooth for the satisfactory operation of a modern motor car. It has much of the appearance of a modern road. The roadway is about 10 feet in width. Unfortunately, as far as I have been able to ascertain, no cross-section of the roadbed has been taken or a study made of the construction details.

The construction of the great system of Roman roads began sometime about 400 B. C. and continued for 600 years, until by 200 A. D. there were 70,000 miles of improved roads. There were 29 great military highways which radiated from Rome in every direction, comprising a total of 48,500 miles. Every province of the Roman Empire was connected with the capital by one of these main roads, and in addition there were many secondary roads for local use. While these roads were termed military roads, their principal use was that of commerce.

"In the low and level grounds these Roman roads were elevated to a considerable height above the adjoining lands and afforded an extensive view of the surrounding country." The roadway ranged in width from 16 to 30 feet with a depth of 3 to 4 feet, and was laid in three or four courses. The top soil was removed, 2 or 3 feet in depth, until a firm foundation was reached; and in case of soft ground



all the soft material was removed and replaced by firm material or piling and grillage of brush, timber and such was used so as to obtain a firm foundation. The first or bottom section, the statumen, was composed of two courses of flat stones laid dry or in lime mortar. The depth averaged 16 to 18 inches. The second course, the rubus, was composed of broken stone mixed with lime in the proportion of 1 part lime to 3 parts stone. This course ranged from 6 to 9 inches deep. Section three, the nucleus, was composed of coarse gravel and lime used hot, or bricks or broken tile mixed with lime and covered with a thin layer of lime mortar. The top or sur-

face of the road, the summa crusta, or pavementum, was constructed of smooth surfaced polygonal blocks of granite or hard lava joined so that scarcely any seam or crack showed. This course was 6 inches thick. Each edge of the paved surface was provided with a curb of stone 2 feet wide and 18 inches high. Sometimes, a narrow side road 6 to 8 feet wide flanked the main pavements. These are the approximate dimensions and construction features of the Appian Way.

Acknowledgment.—From a paper read at the 14th Annual Conference on Highway Engineering, at the University of Michigan.

## Varied-Color Schemes Used for 1929 License Tags

**Thirty-nine States Will Change the Color Scheme of Their Automobile License Plates in 1929 and Twenty-three Different Color Motifs Will be Used, A. A. A. Survey Reveals.**

**T**HIRTY-NINE STATES will change the color combination for automobile license plates in 1929 and twenty-three different motifs will be used, according to a survey by the American Motorist, official publication of the American Automobile Association.

There is a decided trend toward darker colors, it is revealed, and the "brunette" in license plates has gained a small lead over the "blonde." Although varied hues will be represented in the color schemes, nine states and the District of Columbia will retain last year's color combinations, reversing them as to background and lettering.

No single color motif can be said to prevail, although six states and the District of Columbia will use yellow letters and numerals on a black background. This color scheme will therefore predominate in 1929, taking rank over the black on white motif which was used in five states in 1928.

Second honor will go to the orange on black combination, which will be used in five states, as compared to four last year, says the A. A. A. publication. Four states will use a combination of white on black and the same number have adopted white on green.

Between and between will be found the color scheme of sister states, with Tulodian red on cream yellow, black on aluminum and a variety of other hues represented in the identification of the units in the nation's transportation system on rubber tires.

Following are the 1929 colors for passenger cars for all of the states:

State.	Color Scheme.
Alabama	Federal yellow on black.
Arizona	White on maroon.
Arkansas	Gray on dark blue.
California	Deep yellow on dull black.
Colorado	White on dark red.
Connecticut	White on maroon.
Delaware	Dark blue on old gold.
District of Columbia	Chrome yellow on black.
Florida	Orange on dark blue.
Georgia	Orange on black.
Idaho	Orange on gloss black.
Illinois	Red on black.
Indiana	Black on orange.
Iowa	Black on dark green.
Kansas	Black on canary yellow.
Kentucky	White on Western Union blue.
Louisiana	Yellow on black.
Maine	White on dark blue.
Maryland	White on dark green.
Massachusetts	White on marine blue.

Michigan	Yellow on black.
Minnesota	White on black.
Mississippi	White on maroon.
Missouri	White on black.
Montana	Black on white.
Nebraska	White on black.
Nevada	Black on orange.
New Hampshire	Dark green on white.
New Jersey	White on dark gray.
New Mexico	Tulodian red on cream yellow.
New York	Black on yellow.
North Carolina	White on blue.
North Dakota	Black on aluminum.
Ohio	Black on apple green.
Oklahoma	Yellow on black.
Oregon	White on black.
Pennsylvania	Gold on blue.
Rhode Island	Black on white.
South Carolina	Gloss black on white.
South Dakota	White on boxelder green.
Tennessee	White on dark green.
Texas	Orange on black.
Utah	Federal yellow on black.
Vermont	Gold on maroon.
Virginia	Black on orange.
Washington	White on green.
West Virginia	Orange on black.
Wisconsin	Green on white.
Wyoming	Maroon on pearl gray.

### THE WAY OF THE PEDESTRIAN IS HARD—A FALL MAY GET HIM IF AN AUTOMOBILE DOESN'T

While the word pedestrian calls to mind an automobile, just as ham suggests eggs, the motor vehicle is not the only, or even the most, frequent threat against the person of the pedestrian, says C. T. Fish, editor of National Safety News, in an article of the above title in a recent issue of that publication. Statistics show, he points out, that the human biped needs greater equilibrium as well as greater agility in the business of getting about. Specifically, of 3,628 pedestrians who came to grief during 1927, according to certain insurance statistics, only 443 "got between an automobile and its destination." Of the remainder, more than 2,000 fell over, fell off, or fell into something. Of those who fell, 1,324 slipped or tripped on pavement or uneven ground. Ice accounted for the downfall of 665 persons; 57 tripped over objects. Broken bottles pierced the soles of 90 other pedestrians.



## Equipment for Earth Road Maintenance

By W. H. ROGERS, Jr., County Engineer, Pitt County, Greenville, N. C.

**T**HE problem of satisfactory equipment for earth-road maintenance is one that confronts every highway official who has this type of work under his supervision.

Adequate maintenance of our earth roads is growing more and more important each year as the demand increases for better facilities for the marketing of farm products. Each year many additional miles of our main or arterial highways are improved and each mile of such improved road places a greater burden on the highway official to derive the maximum of benefit from these roads by keeping the feeder or secondary roads in the best possible condition throughout the year. The problem is again increased by the greater volume of traffic that the road now has to bear. Roads that were originally built 12, 16 or 20 feet wide now demand straightening, widening and general improving, all of which cannot be performed by construction forces and much of which is consequently left to the maintenance crews. This requires that the maintenance crews perform, in addition to their regular work, what might be called "progressive maintenance."

### Finance

The question of adequate finances is one that greatly influences and often handicaps the road official in his maintenance program. If finances were sufficient so that the work could be carried on as it should be, the matter of maintenance would simplify itself considerably. Most road officials, however, have a great many more miles of road to maintain than the revenue available will permit their caring for properly. Consequently, the money must be spread out, thus limiting the benefits.

### Choosing Equipment

This condition of finances requires that the maintenance equipment purchased must be very flexible and capable of being operated under various soil and climatic conditions. The first necessary piece of equipment for maintenance is the road machine, then the drag, and, next, the power necessary to operate them. The type and size of machine to be used will, of course be determined according to the soil encountered, as well as to the conditions under which it is to be operated.

### Blade Grader

I believe that the most satisfactory of the machines is that with the 7-foot blade. This will handle most soils, is satisfactory for use on narrow roads as well as the wider ones, and is light enough to be used for ditching as well as for general shaping and machining, prior to leaving the road to be dragged. For dragging, one has the choice of steel or wood drags, as well as many types of patented maintainers. I have found that the maintainers, as a rule, are not flexible enough in their usage for general maintenance work.

### Power

After the choice of machine and drags or maintainers, comes the question of power necessary to operate these pieces of equipment. The old method in many states was the mule. There are many places where mules are still being used, but they are rapidly being supplanted by the tractor and truck. The question of choosing between the tractor and the truck and then of selecting the proper type is most im-

portant. In the tractor field we have the crawler type and the less expensive wheel type. In soils where the wheel types are adequate, they are more economical to operate than the crawler type, but, on the other hand, the crawler type of tractor is capable of performing under more adverse conditions.

In the truck field we have a power unit that is more flexible than the tractor in that it is faster and can be used for hauling dirt, top soil, sand and clay in addition to pulling and for transporting labor and equipment from one place to another. It is far more mobile than the tractor and is capable of producing more work in the nature of dragging.

### One-Man Graders

There is also available now for light maintenance, but adapted to maintenance and dressing only, the one-man grader. These machines have become very popular for light work, and in communities where finances require a minimum expenditure they are of great value. They are limited in the work they will do and should not be considered as general maintenance equipment.

### Small Tools and Special Equipment

There are many small tools and special pieces of equipment that are necessary for dirt-road maintenance. These include hand shovels, picks, bush axes, scythes, rakes, mattocks, axes, tooth harrows, disc harrows, mowing machines and many other small tools that the everyday work of dirt roads require.

### Buy Best Equipment and Hire Best Operators

It is not safe for any official to recommend any special make or type of equipment as a standard, for each case has to be diagnosed and the cure adopted that will meet the financial as well as other conditions existing. In the selection of any maintenance equipment, those responsible should first decide what is to be done and then secure the best possible equipment to suit those conditions. Cheap and untried equipment has caused many road officials to be embarrassed in trying to justify a pile of junk that has been accumulating. It pays in the long run to get equipment from the most reliable and responsible dealer possible and one who stands behind his sale. After buying the equipment that is needed, do not take chances with an operator who does not take pride in his work and in the care of his equipment. A man can be replaced at little or no cost, but the equipment must be junked and stand as a memorial to the bad judgment of the official who purchased it.—American City.

The road builder cannot be responsible for the actions of a human being behind a wheel, but he has a large responsibility for these hazards of the roadway. He is equally responsible for the needless loss each year of enough human lives to populate a fair-sized city unless he so designs his roads that only the human equation and acts of Providence remain as causes of accidents. His responsibility for failure to provide every safeguard cannot be shirked on the ground of lack of funds unless he has previously made definite and repeated recommendations for their provision to those who hold the purse strings.—From Editorial, "Safety," in The Highway Magazine, April, 1927, and January, 1928.



## A Quick Driver Rather Than a Speedy Car

**S**PEED is, of course, an important factor in motor-vehicle accidents. There has recently been increased emphasis on the attainable speed of cars as a selling point for some of the manufacturers, countered to some extent by opposition to such a policy as a menace to safety. A large element in the relation of speed to safety is the ability to bring a car to a stop within a short distance; and while on the one hand more rapid acceleration is featured in some automobile advertisements, on the other the importance of good brakes and adequately frequent testing thereof are receiving increased attention.

Another factor of great importance is the ability of the automobile driver to react quickly to a situation demanding a quick stop. This phase of the question is dealt with at some length by Prof. Charles F. Park, Director of the Mechanical Laboratories, Massachusetts Institute of Technology, in an address before the recent State Conference on Industrial and Highway Safety at Boston, Mass. He said in part:

"Our highways are becoming crowded with relatively high-powered vehicles which are operated by persons of varying intelligence; freedom of movement is another expression of American liberty, and the serious problem in highway safety is the one of operation. It has been claimed that 'it is more dangerous today to drive a car than it is to have typhoid or diphtheria.'

"The majority of automobile operators have slight conception of the power and energy of the machines they are expected to control.

"The kinetic energy of an automobile weighing with its live load 3,200 pounds and moving 60 miles an hour is 385,000 foot-pounds. This is more than the energy of a modern passenger locomotive weighing 300,000 pounds and running 5 miles an hour. It is nearly as much as the energy of three 10-ton steam rollers running 5 miles an hour.

"With a moving automobile of such energy, we know, if sufficient time be allowed, the car will come to rest of itself when this energy is used up by friction, rolling resistance and air resistance.

"To stop the car in a shorter time, provision must be made for absorbing this energy in the shortest time by friction through the brakes, the driver supplying the force to the brakes by means of a pedal or lever. \* \* \*

"The motorists must assume the greater share of the responsibility. \* \* \* The reasons for the number of accidents cannot be given by the drivers as due to curves, corners or crossroads, to wet or slippery roads, to darkness or glare of headlights, or to fog or rain. These figures taken for 1927 show a smaller number of accidents and fewer people killed than since 1923. 1925 was the worse year.

"In regard to a 'reasonable speed,' E. W. James, of the Bureau of Public Roads, has raised the following question: Shall we base our test of 'reasonableness' on speed or on congestion? In order to avoid congestion, shall we throw down the bars to speed? In order to avoid speed shall we aggravate congestion? Although surveys have been made in a number of localities, there is still some doubt in the answer to this question. Much depends on the kind of driver of the vehicle.

"The presence of the personal equation in many fields of activity has been definitely established, and allowance is made for it. The personal element in driving an automobile is more evident than in almost

every other occupation and it should be considered. The desire to learn more about this influence prompted the Bureau of Standards to make an investigation, the object of the experiments being to determine the average time that elapses between the hearing of a signal and the applying of the brakes; the relation between this reaction-time and the variability of the individual; and the effect on the reaction-time of such factors as the speed of driving, training, age, sex and general intelligence.

"The reaction-time was determined by two pistols mounted on the running-board and pointed toward the ground, the first being fired by the observer when the car had reached the desired speed, the second one by the action of the person under test in making the initial motion of applying the brake pedal. The pistol shells, being loaded with red lead, fired bright spots on the roads, the distance between which could be measured. The ratio of this distance, in feet, to the speed of the car, in feet per second, gave the reaction-time.

"Fifty-seven operators were tested, and the average reaction-time for the 285 runs was found to be 0.54 seconds. Each operator showed some variability. Those drivers having the shorter reaction-times were less subject to fluctuations in performance, and those drivers having the longer reaction-times varied most.

"If we accept the average figure of 0.54 seconds, it is seen that when one of these average operators is driving his car at 60 m. p. h., which is 88 feet a second, and it becomes necessary to stop, the car would run  $0.54 \times 88$  or  $47\frac{1}{2}$  feet before the brakes would be started to operate.

"Some of the operators tested showed a reaction-time longer than 1 second, and it was believed that the persons selected for the tests (some of them taxi-drivers) have a shorter mean reaction-time than the average person. The experimenters claim that there is little doubt that many drivers could be picked up on the street who would have reaction-times as long as 1.5 or even 2 seconds. In these latter cases, it is seen that the car would run 130 or 175 feet before the brakes would be given a chance to stop the car. I stated earlier that the brakes must act quickly; it is now seen that the operator must act quickly. Otherwise the distance that the car would run during the driver's reaction-time may be greater than the distance in which the brakes would bring the car to rest.

"These facts demonstrate that some persons can safely drive a car at higher speeds than would be safe for other persons, depending on the kind of driver.

"Besides determining the average reaction-time and the relation between the reaction-time and the mean variability of operators, the investigation warranted drawing the following conclusions:

"The reaction-time (1) is not appreciably affected by the speed of driving, (2) is not affected by age or sex, (3) is related to general intelligence, and (4) it may be reduced by training. \* \* \*

"Whether or not any practical use of the facts which I have tried to bring out can be made in the issuing of drivers' licenses or in reissuing a license following an accident is not a question for me to answer. However, the effects of long reaction-times are obvious. A person having a reaction-time of  $1\frac{1}{2}$  seconds when driving his car at a speed of 30



m. p. h. would run 66 feet after receiving a signal to stop or in an emergency before he actually does anything that will bring his car to rest. Under present traffic conditions, the danger of such drivers on the highways should be too apparent to need discussion.

"It would appear that the effect of the personal equation and the fact that such relations as I have tried to bring out exist, have not been generally recognized or appreciated.

"It is my opinion that when automobile operators have knowledge of their reaction-times and know in what distance they can actually stop their cars under all conditions, and when they confine their attention to operating the car and drive at a speed at which they can bring the car to rest within the distance for which they can see a clear way, then there will be fewer accidents on the highways that can be attributed to excessive speed."

Total tax receipts of the Federal government for the fiscal year ending June 30, 1928, were \$2,790,535,537.68, of which \$51,628,265.96 were collected from the motorists of the country, purchasing new automobiles. The amount collected from the motorists in 1928 was approximately fifteen million dollars less than the automobile excise tax in 1927, which aggregated \$66,437,881.32.

Automobile accidents in the 77 largest cities of the country resulted in 588 deaths during August, as compared with 507 deaths from the same cause, during August, 1927, according to figures of the American Motorists' Association. In the same cities, for the year ending August 31, deaths from automobiles numbered 7,223, compared with 6,996 deaths from automobiles during the year ending August 31, 1927.

Each motorist last year purchased an average of 2.8 pneumatic casings for his automobile, compared with 2.6 casings purchased by each motorist in 1926, according to the American Motorists' Association's analysis of census figures for the two years. The figures show that in 1927 a total of 64,059,220 pneumatic casings were purchased by the motorists of the country, compared with 59,004,343 purchased in 1926.

The analysis shows that balloon casings are rapidly gaining in popularity, last year's figures, for the first time, showing more balloon casings purchased than ordinary high pressure casings. In round numbers, thirty million were high pressure casings and thirty-four million were balloon casings.

While the average motorist's tire consumption last year was 2.8 casings, his automobile required an average of 3.1 inner tubes during the year, the automobiles of the country using last year a total of 73,000,000 tubes.

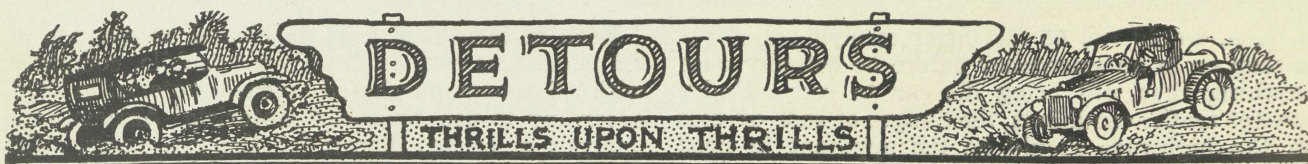
The discarded tires of the American motorists are rapidly becoming one of the principal sources of shoes of the peasants of Europe, according to the Keystone Motorist, one of the official publications of the American Motorists' Association.

Complete figures are not available, the publication states, but figures just published by the Department of Commerce show that in Spain alone last year \$1,330,000 worth of old tires were imported from America and made into footwear. The pneumatic casings are used in the making of alpargata soles, for use among the middle classes. Old solid tires are converted into rubber heels and inner tubes are manufactured into the making of soles for cheap canvas footwear.



Project 604, Road No. 4. North Entrance to New Smyrna.





### "Be What You Is"

Don't be what you ain't;  
 Jes' be what you is,  
 'Cause if you is not what you am,  
 Den you am not what you is;  
 If you is jes' a little tadpole,  
 Don't try to be a frog;  
 If you is jes' de tail,  
 Don't try to wag de dog.  
 You can always pass de plate  
 If you can't exhort and preach;  
 If you is jes' a pebble,  
 Don't try to be de beach.  
 Don't be what you ain't,  
 Jes' be what you is,  
 Cause de man that plays it square  
 Am gwine to get his.  
 It ain't what you is has been,  
 It's what you now am is.  
 —Badger Highways.

### WHAT OF AGE

"Age is a quality of mind.  
 If you've left your dreams behind,  
 If Hope is cold,  
 If you no longer look ahead,  
 If your ambition's fires are dead,  
 Then you are old!  
 But—if from Life you take the best  
 If in Life you keep the Zest,  
 If Love you hold,  
 No matter how the years go by,  
 No matter how the Birthdays fly,  
 You are not old!"  
 —Selected

### The Frog

The frog, poor fellow, seems to be adapted to all manner of queer description. A correspondent writes "in behalf of the frog." He recites the description of the frog credited to a young Norwegian, not long in this country. Here it is:

What a wonderful bird the frog are! When he sit he stand, almost! When he hop he fly, almost! He ain't got no sense, hardly! He ain't got no tail, hardly, either! When he sit he sit on what he ain't got, almost!—Nation's Highways.

### A Catathrophe

Thupreme Typewriter Co.

Dear Thirth:

Will you pleathe thend a typewriter repair man to my office to make the neceththary repairth to my typewriter?

Latht night thomeone broke into my office and knocked the eth off of it. I am greatly inconvenienced by thith lothth and would appreciate it if you could make thith a ruthh job.

Very truly yourth,

Thamuel Thkinner,  
 380 Thouth Thixth Tht.

—Judge.

A sweet little freshman from Scripps,  
 Was worried because of her hips.

She tried to make hollows  
 By cutting down swallows,  
 Till nothing was left amidships.

—Old Maid.

### Good Reason For It

A traveller in Georgia asked an old negro cab-driver his name.

"George Washington, sah," was the answer.

"Well, that's a name known to every person in the country!"

"Oh, yes, sah, I reckon it ought to be. I'se been drivin' heah for mo' than fo'ty years!"

The chipmunk gathers nuts to eat  
 And stores them somewhere in a hole  
 And hasn't any bills to meet  
 And doesn't know the price of coal.

—Youngstown Telegram.

The turtle, too, is on the right track—  
 I envy him his lucky bent—  
 He totes his house upon his back  
 And never pays a bit of rent.  
 —Florida Times-Union.

The elephant should have slight fears,  
 In thoughts of care he's never sunk;  
 Altho' he travels far and near,  
 He never needs to check his trunk.  
 —Canton Daily News.

The sea-cow's life is happy, friend,  
 She does not give a darn;  
 She never, never has to spend  
 All winter in the barn.  
 —Akron Times.

The monkey, too, is quite the same  
 While rambling through the trees and vines;  
 He beats the bootblack at his game,  
 He makes no charge for monkey-shines.  
 —N. K. Bowman, Bowdit, O.

The whiffenpoof's imaginary;  
 On the hot days he doesn't stew;  
 All of his hard-luck and his very  
 Pains are imaginary, too.  
 —Houston Post-Dispatch.


Then there's the sponge, the lowly sponge  
 Has a system not so wrong;  
 When in need of something else,  
 He just sponges right along.  
 —Tarpon Springs Leader.



## Florida Cement

EXCEEDS

State Highway Specifications

DAILY		20000
CAPACITY		SACKS

"A Florida Product for Florida Construction"

Florida Portland Cement Co.

Tampa, Florida

## STAKES

ALL SIZES

WRITE FOR

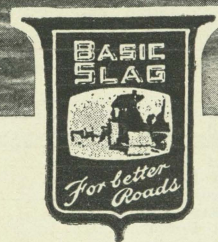
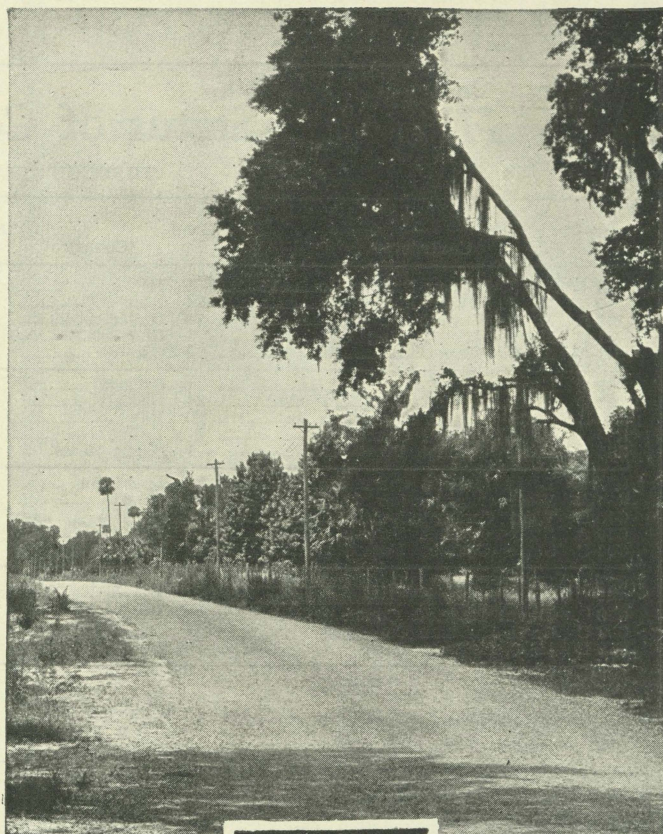
DELIVERED PRICES

Havana Coop & Crate Co.

HAVANA, FLORIDA

Exports of automotive products during the fiscal year ending June 30, 1928, totaled 423,000 units—an increase of 18 per cent over the same period last year—and were valued at \$425,000,000, thus placing the industry as fourth among the leaders of foreign trade, according to the statistical department of the American Motorists' Association.

Foreign purchasers of American-made cars are showing a marked preference for closed cars, although not as much so as the American motorist, according to the American Motorists' Association. Of all the passenger cars sold in this country during 1927, 85.5 were closed models. Of the 76,932 cars exported during the first six months of this year, 66 per cent were closed models.



## Save the Difference

Every year "Ensley Basic Slag" is used in more than a MILLION sq. yds. of hard surface roads and streets. Doesn't that prove, on the face of it, that

**"ENSLEY" & "ALA CITY"**  
**BASIC SLAG**  
CRUSHED & SCREENED

consistently shows a favorable "in the road" cost. This saving (due to the fact that slag weighs from 300 to 600 lbs. per cu. yd. LESS than any other standard road metal) means less weight! less freight! a real saving!

**BIRMINGHAM SLAG CO.**

Slag Headquarters for the South

Atlanta  
Thomasville

Birmingham  
Montgomery

Jacksonville  
Ocala, Fla.



# Status of Construction

THROUGH JULY 31ST, 1928.

Proj. No.	Contractor	Road No.	County	Total Length Miles	Clearing Miles	Grading Miles	Base Miles	Surface Miles	Per Cent Complete
52	W. J. Bryson Paving Co.	1	Escambia	10.09	10.09	10.09		Graded	99.00
55	W. J. Bryson Paving Co.	14	Alachua	16.77	16.77	15.93		Graded	96.00
61-A	M. C. Winterburn, Inc.	1	Gadsden	10.00				10.00 Concrete	98.00
61-C	Morgan-Hill Paving Co.	1	Gadsden	9.77				8.89 Concrete	90.00
62-A	A. D. Weeks	24	Osceola	12.52	11.27	11.27		Graded	80.00
62-C	Everglades Const. Co.	24	Osceola	11.83	11.83	4.96		Graded	57.00
62-D	A. D. Weeks	24	Osceola	12.62	12.62	7.19		Graded	80.00
500-B	State Convict Forces	20	Bay	12.76	5.75	5.75		Graded	33.00
535	L. B. McLeod Const. Co.	5-A	LaFayette	13.20	13.20	11.22		Graded	90.00
585	State Convict Forces	1	Santa Rosa	6.67	6.67	6.67		6.67 S.T.S.C.	100.00
624	L. B. McLeod Const. Co.	50	Hamilton	6.23	6.23	5.98		Graded	94.32
640-A	West Construction Co.	4	Martin	9.00			9.00	9.00 S. Asph.	100.00
640-B	West Construction Co.	4	Martin	11.80			10.74	10.62 S. Asph.	90.00
644-A	State Convict Forces	10	Wakulla	8.50			6.20	1.00 S.T.R.B.	60.00
644-C	State Convict Forces	10	Wakulla	5.06	5.06	5.06		Graded	100.00
645	State Convict Forces	10	Wakulla	18.50			18.50	18.50 S.T.R.B.	100.00
651	State Convict Forces	10	Gulf	14.72			14.72	13.77 S.T.R.B.	98.00
659	Duval Engr. & Contr. Co.	3	Clay	7.25			7.25	7.25 S.T.R.B.	100.00
669-C	R. C. Huffman Const. Co.	27	Dade	12.00	12.00	12.00	12.00	0.00 S.T.R.B.	98.00
669-D	R. C. Huffman Const. Co.	27	Dade	12.31	12.31	12.31	12.31	0.00 S.T.R.B.	98.00
669-V	H. E. Wolfe Const. Co.	27	Collier	19.72	19.72	19.72	19.72	14.00 S.T.R.B.	90.00
677-D	Duval Engr. & Contr. Co.	13	Levy	8.91			8.46	5.08 S.T.R.B.	88.00
678	State Convict Forces	10	Bay	8.73	8.00	7.00		Graded	78.00
683-A	Robert G. Lassiter & Co.	4	Palm Beach	9.04	6.99	6.83		6.83 Concrete	80.00
688	State Convict Forces	10	Bay	9.32	3.32	1.50		Graded	10.00
706-B	Curry & Turner	28	Putnam	14.91	14.91	13.42		Graded	95.00
707	L. B. McLeod Const. Co.	43	Jefferson	5.31	2.00	.50		Graded	8.00
709	C. G. Kershaw Const. Co.	39	Holmes	9.09	9.09	7.54		Graded	80.00
710-A	Franklin Construction Co.	17	Hillsboro	6.18	6.18	5.76		Graded	90.00
710-C	E. F. Powers Const. Co.	17	Hillsboro	12.69	12.69	8.81		Graded	70.00
716	Columbia Const. Co.	28	Bradford	11.21	11.21	11.21		Graded	100.00
720	Hardee-Fisher Co., Inc.	11	Jefferson	9.64	9.64	8.68		Graded	86.00
722	R. J. Carroll	48	Jefferson	8.83	8.83	5.06		Graded	68.00
723	L. B. McLeod Const. Co.	66	Leon	11.76	11.76	10.82		Graded	91.00
724	L. B. McLeod Const. Co.	66	Leon	11.10	10.32	8.10		Graded	58.00
726	State Convict Forces	19	Dixie	12.57	5.68	5.05		Graded	32.00
728	State Convict Forces	10	Leon	11.65	11.07	11.07		Graded	94.50
732	Gilbert & Hadsock	17	Polk	8.94	8.94	8.49		Graded	95.00
736	C. G. Kershaw Contr. Co.	39	Holmes	8.58	8.58	4.55		Graded	69.00
743	State Convict Forces	10	Bay	18.25	18.25	18.25		Graded	92.00
744	State Convict Forces	19	Madison	5.79	5.56	5.21		Graded	87.00
745	Convicts & Taylor County	19	Taylor	15.95	14.36	12.28		Graded	80.00
748	State Convict Forces	35	Madison	6.22	6.09	6.09		Graded	97.00
749	State Convict Forces	14	Gilchrist	7.81	7.42	2.50		Graded	39.00
750	State Convict Forces	14	Gilchrist	12.97	7.26	1.43		Graded	18.00
755	B. Booth	17	Polk	11.22	11.22	11.22		Graded	98.00
757	Little & Lee	2	Polk	10.26	10.26	9.34		Graded	94.00
758	Little & Lee	2	Polk	8.34	8.34	7.92		Graded	96.00
763	A. E. Campbell	50	Suwannee	12.34	12.34	12.09		Graded	98.00
780	C. F. Walker	29	Okeechobee	11.00	10.67	6.93		Graded	74.00
781	C. F. Walker	29	Okeechobee	11.00	11.00	8.25		Graded	68.00
782	C. F. Walker	29	Okeechobee	6.62	6.29	5.63		Graded	71.00
798	State Convict Forces	13	Nassau	15.03	7.00	1.25		Graded	12.00
802-A	C. C. Hayes	10	Okaloosa	8.67	0.00	0.00		Graded	0.00
803	Collins Const. Co.	10	Okaloosa	11.13	0.00	0.00		Graded	0.00
804	C. A. Steed & Sons, Inc.	67	Glades	18.56	18.56	9.28	.93	.00 S.T.R.B.	22.00
807-A	R. C. Huffman Const. Co.	25	Palm Beach	10.82	10.17	8.65	4.22	0.00 S.T.R.B.	57.00
807-C	R. C. Huffman Const. Co.	25	Palm Beach	6.14	0.00	0.00	0.00	0.00 S.T.R.B.	0.00
815	Silas Gibson	54	Okaloosa	13.58	10.15	4.26		Graded	30.00
819	W. J. Bryson Paving Co.	54	Okaloosa	4.44	3.09	2.75		Graded	60.00
823	W. J. Bryson Paving Co.	41	Okaloosa	9.18	8.72	4.77		Graded	58.00
824	W. J. Bryson Paving Co.	41	Okaloosa	9.82	7.95	4.22		Graded	53.00
827	S. G. Collins		Escambia	8.12	8.10	5.43		Graded	57.00
Total complete July 31st, 1928					2734.46	2641.58	1229.36	1940.89	
Complete month of July					9.09	40.30	5.15	12.00	
Total complete June 30th, 1928					2725.37	2601.28	1224.21	1928.89	

## TOTAL MILAGE COMPLETE

	Concrete	Brick	B. C.	S. A.	B. M.	Asph. Block	S.T.R.B.	S.T.S.C.	S. C.	Marl	Total
Complete to June 30, 1928	265.18	17.13	36.46	110.00	109.44	23.20	936.63	172.76	257.04	27.58	1955.42
Complete month of July	3.81			1.74			8.65	1.33			15.53
Complete to July 31, 1928	268.99	17.13	36.46	111.74	109.44	23.20	945.28	174.09	257.04	27.58	1970.95



Wood Preservers Since 1878  
**Eppinger & Russell Co.**

**CREOSOTED**  
**Forest Products of all kinds**

Ties, Lumber, Piles, Poles, Cross Arms for Railroads, Bridges, Docks, Fences, and other purposes where permanent construction is required.

Also Manufacturers and Dealers in  
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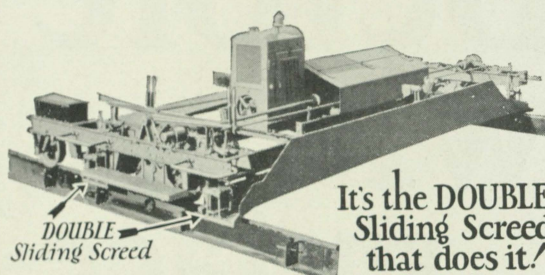
Branch Office: Jacksonville, Fla.

Plants at Jacksonville, Fla.

Long Island City, N. Y.

Information and Quotations Cheerfully Given.  
Address Nearest Office.

**Use Concrete of the Highest  
Quality with the  
ORD Concrete Road Finisher**



No method of finishing concrete roads should involve operations that are likely to reduce the strength of any element in the pavement. For this reason the ORD, with its DOUBLE Sliding Screeds, is in Big demand. With the ORD, concrete of the highest quality can be used—this concrete being relatively dry requires practically no reworking after initial finishing. There results, consequently, a harder, firmer road, that will stand the punishing wear of constant heavy traffic.

**A. W. French & Company**

Manufacturers of the ORD Concrete Road Finisher  
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**SLAG**

**For any Type of Concrete Paving or  
Surface Treatment**

Our Woodward Plant (destroyed by fire July 6th, 1926) has been rebuilt with the most modern Crushing and Screening equipment. This new plant is producing a material unexcelled in correct and uniform sizing.

Our daily capacity from two plants is 3,000 tons, and in addition thereto, we have storage facilities for taking care of rush or emergency orders.

Write or telegraph for delivered prices.

**Woodstock Slag Corporation**

807-8-9 Southern Railway Building  
BIRMINGHAM, ALABAMA

**Reinforcing Bars for  
Concrete**

Made in the United States  
from new billet steel.

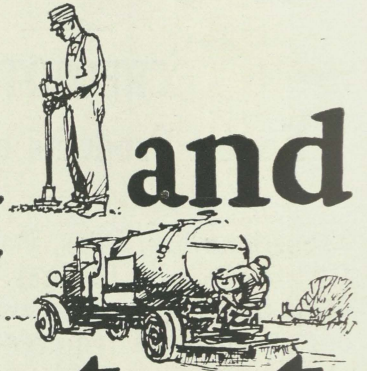
Intelligent, dependable service  
by expert bridgemen.

**Dudley Bar Company**

BIRMINGHAM, ALA.



# Before winter, patch surface-treat your roads and streets with Tarmac . . . .



**It will lessen  
cost of repairs  
next spring . .**

**Y**OU probably have some roads that have had to stand unusually hard traffic.

To carry them through the winter, it is a good idea to patch all holes and cracks with Tarmac Cold Patch or Tarmac Hot Patch.

Both are easy to use and require very little equipment.

Surface treatment of your roads with Tarmac P or Tarmac A will waterproof them and add to their life.

Let us send you specifications and prices on Tarmac for patching, surface treating and various other types of road work.

*Crack-filling*  
Cracks and joints in cement-concrete and other pavements grow wider in the cool fall weather. They can be sealed against water by filling with Tarmac HP.

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